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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,239	10/14/2004	Itsuro Tajima	260375US0PCT	9019

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/510,239

**Applicant(s)**

TAJIMA ET AL.

**Examiner**

Ngoclan T. Mai

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 6 is/are rejected.
- 7) ☒ Claim(s) 2-5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/14/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kukino et al. (U.S. Patent No. 6,008,153).

Kukino discloses a high pressure phase cubic boron nitride based sintered body for cutting tool comprising a continuously bonded phase (3), a hard dispersed phase (1), and an intermediate adhesion phase (2) intervening between the continuously bonded phase (3) and the hard dispersed phase (1), the cubic boron nitride based sintered material comprising:

titanium compound for forming the continuously bonded phase (3) such as Ti boride (col. 4, l. 61-63);

nitride compound of having titanium and aluminum (TiAl) for forming the intermediate adhesion phase (2) (col. 4, l. 55-57); and

cubic boron nitride for forming the hard dispersed phase (1) (col. 4, l. 49-50); wherein the bonded phase (3) includes grain growth inhibitor suppressive binder phase (4) between a plurality of the hard disperse phase (1) enclosed with the intermediate adhesion phase (2), see figure 3 and claim 1.

The grain growth inhibitor can be WC, table 7, sample 6.

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***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kukino (U.S. Patent No. 6,008, 153, now Kukino '153) in view of Kukino (U.S. Patent No. 6623850, now Kukino '850).

The difference between Kukino '153 and the claim is that Kukino '153 does not teach cubic boron nitride based sintered body having titanium nitride layer with film thickness of 0.5 to 5 micron on the surface thereof.

Kukino '850 teaches coating sintered CBN article with a hard coat layer formed of TiN which serve to make easy to distinguish a service life of expired tool and non-used tool, col. 6, l. 57-66. The coating thickness can be from 0.5 to 10 microns, co. 7, l. 18-20. Thus it would have been obvious to one of ordinary skill in the art to form coating layer of TiN on the surface of the cutting tool of Kukino '153 for the noted advantage taught by Kukino '850.

5. Claims 2-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Following are the comments regarding X references cited in the search report.

JP56-9279 discloses a sintered body for cutting tool comprising a hard phase of CBN and a binding phase comprising TiN, TiB<sub>2</sub>, AlN and WB, page 13, line 3+. There is no teaching of nitride of Ti

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and Al in the bonding phase although in the process of making the sintered body WC powder and nitride powder of these compound are used.

With regarding JP56-156738, which is equivalent to U.S. Patent No. 4,334,928 discloses a sintered compact for use in a machining tool comprising boron nitride and the balance a matrix of at least on binder compound material selected from the group consisting of carbide nitride, carbonitride, boride or silicide of Iva and Va transition metal of the periodic table, mixtures thereof or solid solutions of these compounds. The patent also teaches adding aluminum compound such as  $TiAl_3$ ,  $TiAl$  and  $Ti_2AlN$  (col. 12, l. 16-35) improve the bonding strength of the CBN particles to the matrix and improve in wear and toughness of the sintered compact, col. 6, l. 39 to col. 7, l. 5. There is no teaching of the sintered material having the phases as recited in the claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ngoclan T. Mai  
Primary Examiner  
Art Unit 1742

n.m.